



Missouri
Department of
Natural Resources

**EAST FORK LOCUST CREEK
WBID 608**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	East Fork Locust Creek
Missouri Water Body Identification (WBID) Number:	608
8-digit HUC:	10280103
County:	Sullivan
Upstream Legal Description (from Table H):	Hwy 6
Downstream Legal Description (from Table H):	Mouth
Number of sites evaluated	9
List all sites numbers, listed cnsquently upstream to downstream:	1-E THIRD STREET 2-HWY C 3-ROLLING ROAD 4-200m DOWNSTREAM ROLLING ROAD 5-400m DOWNSTREAM ROLLING RD 6-SILVER RD 7-200m DOWNSTREAM SILVER RD 8-HWY T 9-THUNDER ROAD

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s):	Auburn Hills WWTF, Milan WWTP
Discharger Permit Number(s):	MO 0119318, MO 0048151

IV. UAA Surveyor (please print legibly)

Name of Surveyor	RENEE MARTIN	Telephone Number:	(573) 443-4100
Organization/Employer:	MEC Water Resources		
Position:	ENV SPECIALIST		

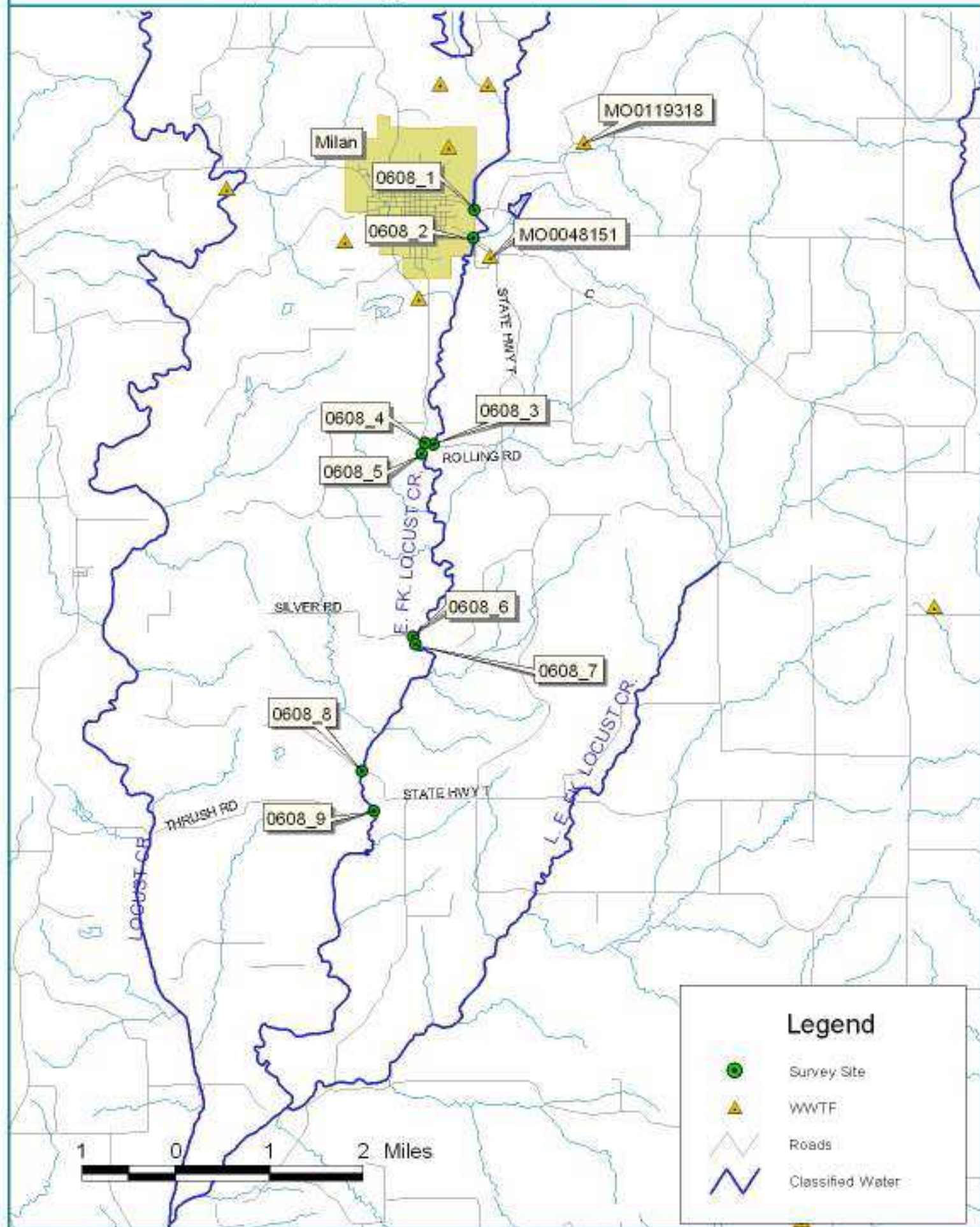
Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Renee Mart Date: 5/22/07

OTUC 5-24-07

AK 5/25/07

E. Fk. Locust Cr. (0608), Length = 16 mi., Permit # MO0048151, MO0119318



WBID# 0608
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 07:35</u>	Site Location Description (e.g., road crossing): <u>EAST THIRD STREET BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN; J. TOTH</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
Current Weather Conditions: <u>Partly Cloudy</u>	Permit Number: <u>MO 0119318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0490407</u>		Y: <u>4450041</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>16</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP	<u> </u>		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-1-207</u>	<u>UPSTREAM SITE #1; TRANSECT #1</u>	<u>0608-Pipe 1-209</u>	<u>DOWNSTREAM, SITE #1 TRANSECT #1</u>
<u>0608-1-208</u>	<u>DOWNSTREAM SITE #1; TRANSECT #1</u>	<u>-PIPE</u>	
<u>0608-cracked pipe 1-210</u>	<u>DOWNSTREAM, SITE #1</u>	<u>0608. Footprints 1-211</u>	<u>UPSTREAM, SITE #1, TRANSECT #2</u>
	<u>TRANSECT #2</u>		
	<u>- CRACKED PIPE</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Agriculture</u>				

WBID# 0608
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Other:	
Comments: <u>Feld drain pipe</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>100</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: John Mart Date of Survey: 5/23/07

Organization: ACE Solutions Position: Env. Specialist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u> Site #: <u>0608-1</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>41.0</u> (m) (height between low bank width and water)		Date: <u>5/23/07</u>	Time: <u>0735</u>
GPS Location (taken at transect 1):		Dissolved Oxygen: <u>7.09</u> (mg/L)	
UTM X: <u>0490401</u>	UTM Y: <u>4450041</u>	Dissolved Oxygen: <u>76.2</u> (% sat)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 16</u> (feet)		Specific Cond: <u>561.0</u> (µS/cm)	
Average Stream Width: <u>9.0</u> (meters)		Water Temperature: <u>18.3</u> (°C)	
Length of Survey Segment: <u>180</u> (meters) (20x average stream width)			
Field Staff: <u>R. MARTIN & J. FETH</u>			

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.0	0.2	0.4	0.1	0.2	0.1
2	1.0	0.5	0.9	0.5	1.1	0.1	1.0	0.6	1.1	<0.1	0.6	0.4	0.7	0.2	0.75	0.3	0.6	0.3	1.2	0.1	0.9	0.1
3	1.9	0.4	1.8	0.5	1.5	<0.1	2.0	0.6	2.2	0.0	1.1	0.5	1.2	0.2	1.2	0.5	1.2	0.2	2.0	0.1	1.6	0.2
4	2.8	0.4	2.7	0.5	1.9	0.1	3.0	0.4	3.3	0.0	1.6	0.4	1.7	0.2	1.65	0.6	1.8	0.2	2.8	0.1	2.3	0.2
5	3.7	0.4	3.6	0.5	2.3	0.1	4.0	0.4	4.4	<0.1	2.1	0.3	2.2	0.1	2.1	0.5	2.4	0.2	3.4	0.1	3.0	0.2
6	4.6	0.4	4.5	0.5	2.7	0.1	5.0	0.6	5.5	0.2	2.6	0.2	2.7	<0.1	2.55	0.4	3.0	0.2	4.4	0.1	3.7	0.2
7	5.5	0.3	5.4	0.6	3.1	0.1	6.0	0.7	6.6	0.1	3.1	0.2	3.2	0.1	3.0	0.2	3.6	0.1	5.2	0.1	4.4	0.2
8	6.4	0.2	6.3	0.4	3.5	0.2	7.0	>1.0	7.7	<0.1	3.4	0.2	3.7	0.2	3.45	0.2	4.2	0.1	6.0	0.1	5.1	0.1
9	7.3	0.2	7.2	0.6	3.9	0.2	8.0	>1.0	8.8	<0.1	4.1	0.1	4.2	0.2	3.9	0.1	4.8	0.1	6.8	<0.1	5.8	0.1
10	8.2	0.2	8.1	0.3	4.3	0.2	9.0	0.7	9.9	0.1	4.6	0.1	4.7	0.3	4.35	0.1	5.4	0.1	7.4	0.2	6.5	0.1
11	9.1	0.1	9.6	0.1	4.7	0.1	10.0	0.2	11.1	0.1	5.1	0.1	5.2	0.1	4.8	0.1	6.0	0.1	8.4	0.1	7.2	0.0
12	9.2	0.0	9.1	0.0	4.9	0.0	10.0	0.0	11.2	0.0	5.7	0.0	5.7	0.0	5.0	0.0	6.2	0.0	8.7	0.0	7.4	0.0
Feature Type (rifle run, or pool)	Pool		Pool		Rifle		Pool		Run		Run		Run		Pool		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: *Dave Mack* Date: 5/23/07

BNC 5-24-07

AK 5/25/07

WBID# 0608
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 0840</u>	Site Location Description (e.g., road crossing): <u>HWY C BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	Facility Name: <u>AUBURN HILLS WWTF, MILAN WWTP</u>
Current Weather Conditions: <u>PARTLY CLOUDY</u>	Permit Number: <u>MO 0119318; MO 048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0490392</u>		Y: <u>4449554</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>23</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-2-212</u>	<u>DOWNSTREAM, SITE #2 TRANSECT #1</u> <u>- IRRIGATION PIPES</u>		
<u>0608-2-213</u>	<u>UPSTREAM, SITE #2 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>AGRICULTURE</u>				

WBID# 0608
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Other:	
Comments: <u>IRRIGATION PIPES</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>100</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE PRESENT

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: James Martin Date of Survey: 5/23/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>		Site #: <u>0608-2</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>160</u> (m) (height between low bank width and water)		GPS Location (taken at transect 1): UTM X: <u>0490392</u> UTM Y: <u>4449554</u>		Date: <u>5/23/07</u>	Time: <u>0840</u>
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>23</u> (feet)				Dissolved Oxygen: <u>6.62</u> (mg/L)	
Average Stream Width: <u>8</u> (meters)		Length of Survey Segment: <u>160</u> (meters) (20x average stream width)		Dissolved Oxygen: <u>70.0</u> (% sat)	
Field Staff: <u>R. MARTIN : J. FOTH</u>				Specific Cond: <u>562.0</u> ($\mu\text{S/cm}$)	
				Water Temperature: <u>18.6</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.4	0.1	0.8	0.1	0.1	0.1	0.4	0.1	1.4	0.1	0.1	0.1	1.4	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.9	0.1
2	0.9	0.2	1.35	0.1	1.2	0.1	1.25	0.2	2.4	0.1	1.3	0.1	2.05	0.2	0.75	0.1	0.75	0.2	0.5	0.4	1.25	0.1
3	1.7	0.3	1.9	0.2	2.3	0.1	2.1	0.2	3.4	0.1	2.5	0.1	2.7	0.2	1.3	0.2	1.4	0.2	0.8	0.5	1.6	0.1
4	2.5	0.2	2.45	0.2	3.4	0.2	2.95	0.2	4.4	0.2	3.7	0.1	3.35	0.3	1.85	0.1	2.05	0.1	1.1	0.5	1.95	0.1
5	3.3	0.2	3.0	0.2	4.5	0.2	3.8	0.4	5.4	0.2	4.9	0.1	4.0	0.3	2.4	0.2	2.7	0.2	1.4	0.5	2.3	0.2
6	4.1	0.4	3.55	0.2	5.6	0.2	4.65	0.4	6.4	0.1	6.1	0.0	4.65	0.3	2.95	0.2	3.35	0.3	1.7	0.4	2.65	0.2
7	4.9	0.4	4.1	0.2	6.7	0.2	5.5	0.6	7.4	0.1	7.3	0.2	5.3	0.3	3.5	0.2	4.0	0.2	2.0	0.4	3.0	0.2
8	5.7	0.5	4.65	0.3	7.8	0.1	6.35	0.6	8.4	0.3	8.5	0.4	5.95	0.3	4.05	0.3	4.65	0.2	2.3	0.3	3.35	0.2
9	6.5	0.5	5.2	0.3	8.9	0.1	7.2	0.7	9.4	0.2	9.7	0.4	6.6	0.2	4.6	0.2	5.3	0.1	2.6	0.2	3.7	0.2
10	7.3	0.4	5.75	0.2	10.0	0.1	8.05	0.6	10.4	0.2	10.9	0.4	7.25	0.1	5.15	0.3	5.95	0.1	2.9	0.1	4.05	0.2
11	8.1	0.2	6.3	0.1	11.1	0.1	8.9	0.1	11.4	0.1	12.1	0.1	7.9	0.1	5.7	0.2	6.6	0.1	3.2	0.1	4.4	0.1
12	8.1	0.2	7.8	0.0	11.4	0.0	9.1	0.0	11.6	0.0	12.2	0.0	8.1	0.0	5.7	0.2	7.6	0.0	5.5	0.0	4.8	0.0
Feature Type (riffle, run, or pool)	Pool		Run		Run		Pool		Run		Run/Pool		Run		Run		Run		Pool/Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

ANC

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AK 5/25/07

WBID# 0608
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Date & Time: <u>5/23/07 0945</u>	Site Location Description (e.g., road crossing): <u>ROLLING ROAD BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN ; J. FOTH</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
Current Weather Conditions: <u>PARTLY CLOUDY</u>	Permit Number: <u>MO 0119318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0489725</u>		Y: <u>4446015</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>16</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP			

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-3.214</u>	<u>UPSTREAM SITE #3 TRANSECT #1</u>		
<u>0608-3.215</u>	<u>DOWNSTREAM SITE #3 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0608
Site# rm 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>100</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Steve Mart Date of Survey: 5/23/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0609</u>		Site #: <u>0608-3</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>4.0</u> (m) (height between low bank width and water)		GPS Location (taken at transect 1): UTM X: <u>0489723</u> UTM Y: <u>4446017</u>		Date: <u>5/23/07</u>	Time: <u>0945</u>
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 16</u> (feet)		Average Stream Width: <u>7.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width)		Dissolved Oxygen: <u>8.21</u> (mg/L)	
Field Staff: <u>RONNIE MARTIN & JUSTYN FOTH</u>				Dissolved Oxygen: <u>88.9</u> (% sat)	
				Specific Cond: <u>561.0</u> ($\mu\text{S/cm}$)	
				Water Temperature: <u>19.4</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

[illegible]

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

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WBID# 0608
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 1025</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. Martin; J. Beth</u>	<u>200m DOWNSTREAM ROLLING ROAD BRIDGE CROSSING</u>
Current Weather Conditions: <u>P. Cloudy</u>	Facility Name: <u>AUBURN HILLS WWTF, MILAN WWTP</u>
Weather Conditions for Past 10 days: <u>Unknown</u>	Permit Number: <u>MO 011 9318; MO 0048151</u>
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>489577</u>		Y: <u>4446039</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>17</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-4.216</u>	<u>UPSTREAM, SITE #4; TRANSECT #1</u>		
<u>0608-4.217</u>	<u>DOWNSTREAM, SITE #4; TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0608
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>100</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Don Mat Date of Survey: 5/23/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>	Site #: <u>0608-4</u> <small>(WBID_Site#)</small>
Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water)	
GPS Location (taken at transect 1): UTM X: <u>489577</u> UTM Y: <u>4446039</u>	
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>17</u> (feet)	
Average Stream Width: <u>7.5</u> (meters)	Length of Survey Segment: <u>150</u> (meters) <small>(20x average stream width)</small>
Field Staff: <u>R. MARTIN & J. FOTH</u>	

Dissolved Oxygen	
Date: <u>5/23/07</u>	Time: <u>1025</u>
Dissolved Oxygen: <u>7.45</u> (mg/L)	
Dissolved Oxygen: <u>81.1</u> (% sat)	
Specific Cond: <u>563</u> ($\mu\text{S}/\text{cm}$)	
Water Temperature: <u>19.5</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.5	0.1	0.2	0.1	0.5	0.1	0.0	0.4	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.0	0.1	0.9	0.1
2	0.75	0.6	0.9	0.3	1.2	0.2	0.85	1.0	1.2	0.4	0.5	0.1	0.75	0.2	6.05	0.4	0.85	0.5	0.65	0.5	1.4	0.1
3	1.4	0.7	1.6	0.5	1.9	0.3	1.7	>1.0	2.2	0.5	1.0	0.2	1.4	0.1	2.0	0.7	1.7	0.4	1.3	0.7	1.9	0.2
4	2.05	0.8	2.3	0.6	2.6	0.3	2.55	>1.0	3.2	0.7	1.5	0.2	2.05	0.2	2.95	0.6	2.55	0.4	1.95	0.7	2.4	0.2
5	2.7	0.8	3.0	0.8	3.3	0.3	3.4	>1.0	4.2	0.7	2.0	0.2	2.7	0.2	3.9	0.4	3.4	0.3	2.6	0.4	2.9	0.2
6	3.35	0.8	3.7	0.9	4.0	0.4	4.25	>1.0	5.2	0.7	2.5	0.1	3.35	0.2	4.85	0.2	4.25	0.2	3.25	0.4	3.4	0.3
7	4.0	0.7	4.4	0.9	4.7	0.4	5.1	>1.0	6.2	0.4	3.0	0.1	4.0	0.2	5.8	0.1	5.1	0.2	3.9	0.3	3.9	0.3
8	4.65	0.7	5.1	0.9	5.4	0.5	5.95	>1.0	7.2	0.5	3.5	0.2	4.65	0.2	6.75	0.2	5.95	0.1	4.55	0.1	4.4	0.3
9	5.3	0.7	5.8	0.8	6.1	0.5	6.8	>1.0	8.2	0.6	4.0	0.1	5.3	0.2	7.70	0.3	6.8	0.2	5.2	<0.1	4.9	0.3
10	5.95	0.5	6.5	0.5	6.8	0.3	7.65	0.8	9.2	0.6	4.5	0.1	5.95	0.1	8.65	0.3	7.65	0.2	5.85	<0.1	5.4	0.3
11	6.6	0.1	7.2	0.1	7.5	0.1	8.5	0.1	10.2	0.1	5.0	0.1	6.6	0.1	9.6	0.1	8.5	0.1	6.5	0.1	5.9	0.1
12	6.9	0.0	7.3	0.0	8.0	0.0	8.6	0.0	10.3	0.0	6.0	0.0	7.0	0.0	10.0	0.0	8.8	0.0	6.7	0.0	6.4	0.0
Feature Type (riffle run, or pool)	Pool		Pool		Pool		Pool		Pool		Riffle		Run		Pool		Pool		Pool		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

QUC 5-24-05

AK 5/25/07

WBID# 0608
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 1105</u>	Site Location Description (e.g., road crossing): <u>400 m DOWNSTREAM ROLLING ROAD BRIDGE CROSSING</u>
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	Facility Name: <u>AUBURN HILLS WHITE MILAN WWTP</u>
Current Weather Conditions: <u>P. CLOUDY</u>	Permit Number: <u>MO 0119318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>489521</u>		Y: <u>4445846</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>19</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP			

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-5-218</u>	<u>UPSTREAM, SITE #5, TRANSECT #1</u>		
<u>0608-5-219</u>	<u>DOWNSTREAM, SITE #5, TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0608
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>100</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
--------------------	--------------------	-------------------	------------------	----------------------	---------------------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/23/07

Organization: AESOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>		Site #: <u>0608-5</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>21.0</u> (m) (height between low bank width and water)		GPS Location (taken at transect 1):		Date: <u>5/23/07</u>	Time: <u>1105</u>
UTM X: <u>489521</u>		UTM Y: <u>4445846</u> <u>pm</u> <u>19</u>		Dissolved Oxygen: <u>6.38</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 4445846</u> (feet)				Dissolved Oxygen: <u>68.8</u> (% sat)	
Average Stream Width: <u>9.0</u> (meters)		Length of Survey Segment: <u>180</u> (meters) (20x average stream width)		Specific Cond: <u>571</u> (µS/cm)	
Field Staff: <u>R. MARTIN, J. FOT4</u>				Water Temperature: <u>19.7</u> (°C)	

		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Measurement																							
1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.2	0.1	0.1	0.3	0.1
2	0.95	0.3	0.8	0.4	1.0	0.4	1.3	0.2	1.0	0.4	1.0	0.5	0.85	0.6	1.3	0.7	0.85	0.6	0.7	0.4	1.15	0.3	
3	1.8	0.5	1.5	0.5	2.0	0.4	2.5	0.2	1.8	0.5	2.0	0.5	1.7	0.4	2.6	0.7	1.7	0.8	1.3	0.8	2.0	0.5	
4	2.65	0.6	2.2	0.6	3.0	0.4	3.7	0.2	2.6	0.5	3.0	0.4	2.55	0.2	3.9	0.9	2.55	0.9	1.9	0.9	2.85	0.6	
5	3.5	0.6	2.9	0.7	4.0	0.5	4.9	0.2	3.4	0.4	4.0	0.3	3.4	0.3	5.2	0.8	3.4	1.0	2.5	1.0	3.7	0.7	
6	4.35	0.6	3.6	0.8	5.0	0.6	4.1	0.2	4.2	0.4	5.0	0.3	4.25	0.4	6.5	0.7	4.25	1.0	3.1	0.8	4.55	0.8	
7	5.2	0.7	4.3	0.9	6.0	0.6	7.3	0.3	5.0	0.4	6.0	0.2	5.1	0.3	7.8	0.5	5.1	>1.0	3.7	0.5	5.4	0.9	
8	6.15	0.7	5.0	>1.0	7.0	0.5	8.5	0.3	5.8	0.3	7.0	0.2	5.95	0.3	9.1	0.6	5.95	0.7	4.3	0.4	6.25	0.8	
9	6.9	0.7	5.7	0.6	8.0	0.3	9.7	0.1	6.6	0.3	8.0	0.2	6.8	0.3	10.4	0.3	6.8	0.3	4.9	0.4	2.1	0.6	
10	7.95	0.7	6.4	0.8	9.0	0.2	10.9	0.1	7.4	0.2	9.0	0.4	7.65	0.2	11.7	0.1	7.65	0.3	5.5	0.4	7.95	0.4	
11	8.4	0.3	7.1	0.1	10.0	0.1	12.1	0.1	8.2	0.2	10.0	0.1	8.5	0.1	13.0	0.1	8.5	0.1	6.1	0.1	8.8	0.1	
12	8.5	0.3	7.3	0.0	10.2	0.0	12.9	0.0	8.6	0.2	10.5	0.0	9.8	0.0	13.6	0.0	8.6	0.0	6.2	0.0	9.3	0.0	
Feature Type (riffle, run, or pool)	Pool		Pool		Pool		Run		Pool		Pool		Pool		Pool		Pool		Pool		Pool		

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: R. Martin Date: 5/23/07
 RWC 5-24-07
 AAK shs/07

WBID# 0608
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 1230</u>	Site Location Description (e.g., road crossing): <u>SILVER ROAD</u>
Personnel (Data Collectors): <u>D. MARTIN & J. FOTH</u>	
Current Weather Conditions: <u>P. CLOUDY</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
	Permit Number: <u>MO 019318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0489371</u>		Y: <u>4442728</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u> </u> Meters	Source Map Scale: 1:24,000 1:100,000 Other <u> </u>	
EPE	± <u>21</u> Feet or ± <u> </u> Meters	± <u> </u> Feet or ± <u> </u> Meters	
PDOP	<u> </u>		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-6-220</u>	<u>UPSTREAM, SITE #6 TRANSECT #1</u>		
<u>0608-6-221</u>	<u>DOWNSTREAM, SITE #6 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Agriculture</u>				

WBID# 0608
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>100</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/23/07

Organization: AE Solutions Position: Env. Specialist

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>	Site #: <u>0608-6</u> <small>(WBID_Site#)</small>	Dissolved Oxygen
Estimated Channel Incision: <u>5.0</u> (m) (height between low bank width and water)		Date: <u>5/23/07</u> Time: <u>1230</u> <small>pm</small>
GPS Location (taken at transect 1): UTM X: <u>0489371</u> UTM Y: <u>442728</u>		Dissolved Oxygen: <u>5.99</u> (mg/L)
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>21</u> (feet)		Dissolved Oxygen: <u>67.3</u> (% sat)
Average Stream Width: <u>8.5</u> (meters)	Length of Survey Segment: <u>160</u> (meters) <small>(20x average stream width)</small>	Specific Cond: <u>565</u> ($\mu\text{S/cm}$)
Field Staff: <u>R. MARTIN & J. FOTH</u>		Water Temperature: <u>22.3</u> ($^{\circ}\text{C}$)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	1.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.6	0.1
2	1.5	0.1	0.65	0.1	0.6	0.2	0.8	0.1	0.9	0.3	0.5	0.3	0.7	0.3	0.6	0.3	0.45	0.6	0.7	0.3	1.1	0.2
3	2.0	0.1	1.1	0.2	1.1	0.2	1.5	0.1	1.7	0.2	0.8	0.6	1.3	0.4	0.9	0.3	0.7	0.6	1.2	0.3	1.6	0.2
4	2.5	0.1	1.55	0.2	1.6	0.2	2.2	0.2	2.5	0.1	1.1	0.6	1.9	0.4	1.2	0.2	0.95	0.5	1.7	0.3	2.1	0.2
5	3.0	0.1	2.0	0.2	2.1	0.1	2.9	0.2	3.3	0.1	1.4	0.7	2.5	0.6	1.5	0.2	1.2	0.5	2.2	0.4	2.6	0.2
6	3.5	0.2	2.45	0.2	2.6	0.1	3.6	0.1	4.1	0.1	1.7	0.7	3.1	0.4	1.8	0.2	1.45	0.4	2.7	0.5	3.1	0.3
7	4.0	0.2	2.9	0.2	3.1	0.1	4.3	0.2	4.9	0.1	2.0	0.3	3.7	0.3	2.1	0.2	1.7	0.3	3.2	0.5	3.6	0.4
8	4.5	0.2	3.35	0.1	3.6	0.1	5.0	0.3	5.7	0.1	2.3	0.4	4.3	0.3	2.4	0.1	1.95	0.2	3.7	0.5	4.1	0.4
9	5.0	0.2	3.8	0.1	4.1	0.1	5.7	0.2	6.5	0.1	2.6	0.4	4.9	0.3	2.7	0.1	2.2	0.2	4.2	0.4	4.6	0.2
10	5.5	0.1	4.25	0.1	4.6	0.1	6.4	0.1	7.3	0.1	2.9	0.5	5.5	0.2	3.0	0.1	2.45	0.1	4.7	0.2	5.1	0.2
11	6.0	0.1	4.7	0.1	5.1	0.1	7.1	0.1	8.1	0.1	3.2	0.1	6.1	0.1	3.3	0.1	2.7	0.1	5.2	0.1	5.5	0.1
12	6.2	0.0	5.3	0.0	5.3	0.0	7.2	0.0	8.4	0.0	3.9	0.0	7.1	0.0	4.7	0.0	3.2	0.0	5.8	0.0	5.6	0.0
Feature Type (riffle run, or pool)	Run		Run		Run		Run		Run		Run		Pool		Riffle		Run/pool		Pool		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

RUC 5-24-07 *AK* 5/25/07

WBID# 0608
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 1300</u>	Site Location Description (e.g., road crossing): <u>200 m DOWNSTREAM SILVER RD</u>
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	
Current Weather Conditions: <u>P. CLOUDY</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
	Permit Number: <u>MO 0119318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0489418</u>		Y: <u>444 2597</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>27</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-7-222</u>	<u>UPSTREAM SITE #7; TRANSECT #1</u>		
<u>0608-7-223</u>	<u>DOWNSTREAM SITE #7; TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>Agriculture</u>				

WBID# 608
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	<u>10</u>	% Gravel	<u>90</u>	% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/23/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>		Site #: <u>0608-7</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>3.0</u> (m) (height between low bank width and water)		GPS Location (taken at transect 1): UTM X: <u>0489418</u> UTM Y: <u>4442597</u>		Date: <u>5/23/02</u>	Time: <u>1300</u>
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>27</u> (feet)		Average Stream Width: <u>8</u> (meters)		Dissolved Oxygen: <u>5.99</u> (mg/L)	
		Length of Survey Segment: <u>160</u> (meters) (20x average stream width)		Dissolved Oxygen: <u>68.1</u> (% sat)	
Field Staff: <u>R. MARTIN & J. FOTH</u>				Specific Cond: <u>565</u> ($\mu\text{S/cm}$)	
				Water Temperature: <u>22.5</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Measurement	1	0.3	0.1	0.2	0.1	0.0	0.1	1.0	0.1	0.1	0.1	0.1	0.6	0.1	0.1	0.2	0.1	0.4	0.1	0.4	0.1	0.3	0.1
	2	1.0	0.1	1.2	0.2	1.2	0.2	1.25	0.1	0.5	0.2	0.5	0.3	0.8	0.5	1.1	0.2	1.0	0.1	1.15	0.1	0.75	0.2
	3	1.7	0.1	2.2	0.4	2.4	0.2	1.5	0.1	0.9	0.3	0.9	0.4	1.5	0.4	2.0	0.2	1.6	0.2	1.9	0.2	1.2	0.3
	4	2.4	<0.1	3.2	0.4	3.6	0.2	1.75	0.2	1.3	0.2	1.3	0.5	2.2	0.4	2.9	0.0	2.2	0.3	2.65	0.2	1.65	0.3
	5	3.1	<0.1	4.2	0.5	4.8	0.1	2.0	0.2	1.7	0.3	1.7	0.6	2.9	0.3	3.8	0.0	2.8	0.2	3.4	0.2	2.1	0.2
	6	3.8	0.1	5.2	0.6	6.0	0.1	2.25	0.2	2.1	0.3	2.1	0.6	3.6	0.3	4.7	<0.1	3.4	0.1	4.15	0.1	2.55	0.2
	7	4.5	0.2	6.2	0.6	7.2	0.1	2.5	0.2	2.5	0.4	2.5	0.7	4.3	0.2	5.6	<0.1	4.0	0.2	4.9	0.1	3.0	0.2
	8	5.2	0.3	7.2	0.7	8.4	0.1	2.75	0.2	2.9	0.3	2.9	0.7	5.0	0.2	6.5	<0.1	4.6	0.1	5.05	<0.1	3.45	0.2
	9	5.9	0.2	8.2	0.3	9.6	0.2	3.0	0.2	3.3	0.3	3.3	0.5	5.7	0.2	7.4	0.1	5.2	0.1	6.4	<0.1	3.9	0.2
	10	6.6	0.1	9.2	0.5	10.8	0.2	3.25	0.2	3.7	0.2	3.7	0.4	6.4	0.2	8.3	0.1	5.8	0.1	7.15	<0.1	4.35	0.2
	11	7.3	0.1	10.2	0.1	12.0	0.1	3.5	0.1	4.1	0.2	4.1	0.1	7.1	0.1	9.2	0.1	6.4	0.1	7.9	0.1	4.8	0.1
	12	7.5	0.0	10.8	0.0	12.1	0.0	5.0	0.0	4.1	0.2	4.3	0.1	7.3	0.0	9.5	0.0	6.5	0.0	8.0	0.0	5.9	0.0
Feature Type (riffle, run, or pool)		Riffle		Pool		Run		Run		Run		Run/Pool		Run		Run		Run		Riffle		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

QUC 5-24-07

AK 5/25/07

WBID# 0608
 Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/23/07 1345</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	<u>HWY T - BRIDGE CROSSING</u>
Current Weather Conditions: <u>P. CLOUDY</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	Permit Number: <u>MO 0119318; MO 0048151</u>
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0488492</u>		Y: <u>4440419</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>10</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site#_###)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site#_###)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-8-224</u>	<u>UPSTREAM, SITE #8 TRANSECT #1</u>		
<u>0608-8-225</u>	<u>- PIPE</u>		
	<u>DOWN STREAM, SITE #8 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0608
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Other:	
Comments: <i>Pipe upstream Transect #1</i>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u>20</u> % Gravel	<u>80</u> % Sand	<u> </u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

RM AT NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: *Glenn Hunt* Date of Survey: 5/23/07

Organization: *Ac Solutions* Position: *Env. Specialist*

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>		Site #: <u>0608_8</u> (WBID_Site#)		Dissolved Oxygen	
Estimated Channel Incision: <u>21.0</u> (m) (height between low bank width and water)				Date: <u>5/23/07</u>	Time: <u>1345</u>
GPS Location (taken at transect 1): UTM X: <u>0498492</u> UTM Y: <u>4440419</u>				Dissolved Oxygen: <u>6.34</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>23</u> (feet)				Dissolved Oxygen: <u>70.5</u> (% sat)	
Average Stream Width: <u>7.5</u> (meters)	Length of Survey Segment: <u>150</u> (meters) (20x average stream width)			Specific Cond: <u>532</u> ($\mu\text{S/cm}$)	
Field Staff: <u>R. MARTIN & J. FORTH</u>				Water Temperature: <u>21.7</u> ($^{\circ}\text{C}$)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.8	0.1	1.0	0.1	0.4	0.1	0.7	0.1	0.5	0.1	0.4	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1
2	1.7	0.1	1.65	0.2	1.5	0.3	1.3	0.2	0.8	0.1	0.9	0.2	0.65	0.3	1.0	0.5	1.1	0.3	1.0	0.5	1.2	0.4
3	2.4	0.2	2.3	0.2	2.6	0.5	1.9	0.3	1.1	0.1	1.4	0.2	1.2	0.3	2.0	0.4	2.1	0.3	1.8	0.7	2.2	0.7
4	3.5	0.3	2.95	0.2	3.7	0.6	2.5	0.3	1.5	0.2	1.9	0.3	1.75	0.3	3.0	0.3	3.1	0.7	2.6	0.7	3.2	0.6
5	4.4	0.3	3.4	0.3	4.8	0.7	3.1	0.3	1.8	0.2	2.4	0.3	2.3	0.2	4.0	0.3	4.1	0.7	3.4	0.7	4.2	0.6
6	5.3	0.4	4.25	0.3	5.9	0.7	3.7	0.3	2.1	0.2	2.9	0.2	2.85	0.2	5.0	0.1	5.1	0.6	4.2	0.6	5.2	0.3
7	6.2	0.4	4.9	0.3	7.0	0.9	4.3	0.4	2.4	0.2	3.4	0.2	3.4	0.2	6.0	0.0	6.1	0.5	5.0	0.4	6.2	0.3
8	7.1	0.4	5.55	0.4	8.1	1.0	4.9	0.3	2.7	0.2	3.9	0.1	3.95	0.1	7.0	0.1	7.1	0.3	5.8	0.4	7.2	0.2
9	8.0	0.4	6.2	0.6	9.2	0.8	5.8	0.2	3.0	0.2	4.4	0.1	4.5	0.1	8.0	0.2	8.1	0.2	6.6	0.3	8.2	0.2
10	8.9	0.5	6.85	0.5	10.3	0.6	6.1	0.1	3.3	0.1	4.9	0.1	5.05	0.1	9.0	0.2	9.1	0.3	7.4	0.1	9.2	0.1
11	9.8	0.1	7.5	0.2	11.4	0.2	6.7	0.1	3.6	0.1	5.4	0.1	5.6	0.1	10.0	0.1	10.1	0.3	8.2	0.1	10.2	0.1
12	10.0	0.0	7.5	0.2	12.0	0.2	7.2	0.0	3.7	0.0	6.4	0.0	7.7	0.0	10.3	0.0	10.2	0.0	9.2	0.0	10.5	0.0
Feature Type (riffle run, or pool)	Pool		Pool		Pool		Run		Run		Run		Run		Run		Pool		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date:

Doc 5-24-09

APC 5/25/07

WBID# 0608
 Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Date & Time: <u>5/23/07 1430</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	<u>THUNDER ROAD</u>
Current Weather Conditions: <u>A CLOUDY</u>	Facility Name: <u>AUBURN HILLS WWTF; MILAN WWTP</u>
	Permit Number: <u>MO 0119318; MO 0048151</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0488697</u>		Y: <u>4439737</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>42</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0608-9-226</u>	<u>UPSTREAM SITE #9 TRANSECT #1</u>		
<u>0608-9-228</u>	<u>DOWNSTREAM SITE #9 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0608
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>5</u> % Cobble	<u>5</u> % Gravel	<u>95</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/23/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

RUC 5-24-07
DAR 5/25/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0608</u>	Site #: <u>0608-9</u> (WBID_Site#)	Dissolved Oxygen	
Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water)		Date: <u>5/23/07</u>	Time: <u>1430</u>
GPS Location (taken at transect 1): UTM X: <u>0488697</u> UTM Y: <u>4439737</u>		Dissolved Oxygen: <u>4.98</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 42</u> (feet)		Dissolved Oxygen: <u>60.5</u> (% sat)	
Average Stream Width: <u>9.0</u> (meters)	Length of Survey Segment: <u>180</u> (meters) (20x average stream width)	Specific Cond: <u>536</u> (µS/cm)	
Field Staff: <u>R. MARTIN & J. FOTH</u>		Water Temperature: <u>22.9</u> (°C)	

Measurement		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.1	0.1	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.4	0.1	0.1	
2	0.9	0.1	1.35	0.1	1.4	0.3	1.2	0.3	1.3	0.2	1.0	0.1	0.9	0.4	1.05	0.2	0.5	0.5	1.1	0.8	1.1	0.6	
3	1.7	0.1	2.3	0.1	2.6	0.4	2.3	0.4	2.5	0.1	1.5	0.2	1.6	0.3	1.8	0.3	0.9	0.5	2.2	1.0	2.1	1.0	
4	2.5	0.1	3.25	0.1	3.8	0.3	3.4	0.3	3.7	0.4	2.0	0.3	2.3	0.3	2.55	0.2	2.3	0.6	3.3	1.0	3.1	1.0	
5	3.3	0.1	4.2	0.1	5.0	0.4	4.5	0.3	4.9	0.6	2.5	0.4	3.0	0.3	3.3	0.2	2.7	0.4	4.4	0.8	4.1	0.9	
6	4.1	0.2	5.15	0.1	6.2	0.4	5.6	0.4	6.1	0.7	3.0	0.4	3.7	0.3	4.05	0.2	3.1	0.2	5.5	0.7	5.1	0.8	
7	4.9	0.2	6.1	0.1	7.4	0.5	6.7	0.6	7.3	0.8	3.5	0.5	4.4	0.4	4.8	0.1	3.5	0.3	6.6	0.9	6.1	0.6	
8	5.7	0.2	7.05	0.1	8.6	0.5	7.8	0.5	8.5	0.9	4.0	0.5	5.1	0.2	5.55	0.1	3.9	0.2	7.7	0.8	7.1	0.5	
9	6.5	0.2	8.0	0.2	9.8	0.5	8.9	0.5	9.7	0.9	4.5	0.3	5.8	0.2	6.3	0.1	4.3	0.2	8.8	0.6	8.1	0.5	
10	7.3	0.2	8.95	0.2	11.0	0.8	10.1	0.4	10.9	0.6	5.0	0.2	6.5	0.1	7.05	0.1	4.7	0.1	9.9	0.3	9.1	0.4	
11	8.1	0.1	9.9	0.1	12.2	0.2	11.2	0.1	12.1	0.1	5.5	0.1	7.2	0.1	7.8	0.1	5.1	0.1	11.0	0.1	10.1	0.5	
12	8.5	0.0	9.9	0.0	12.2	0.2	12.0	0.0	12.5	0.0	5.8	0.0	7.3	0.0	8.0	0.0	5.4	0.0	12.0	0.0	10.7	0.0	
Feature Type (riffle, run, or pool)	Run		Riffle run		Pool		Pool		Pool		Run		Run		Run		Pool		Pool		Pool		

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

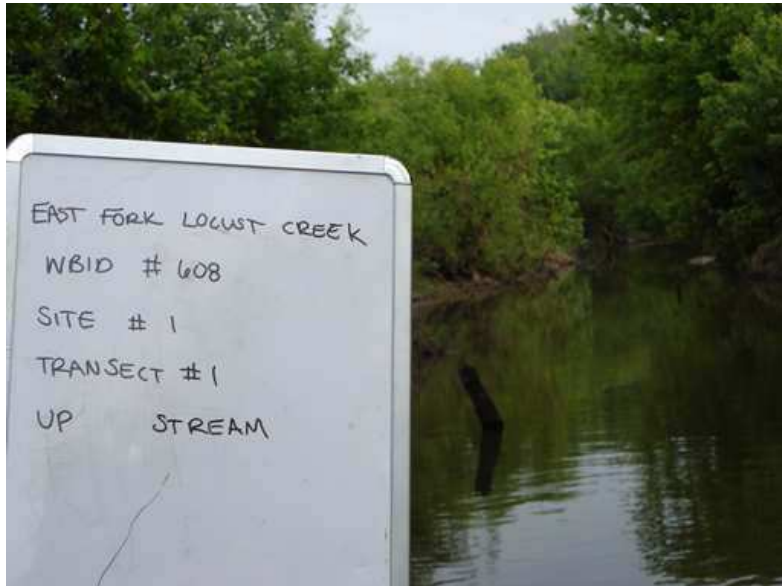
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature] Date: 5/23/07

BWC 5-24-07

[Signature] 5/25/07

WBID# 608



Site# 1 Photo ID# 0608-1-207, Upstream



Site# 1 Photo ID# 0608-1-208, Downstream

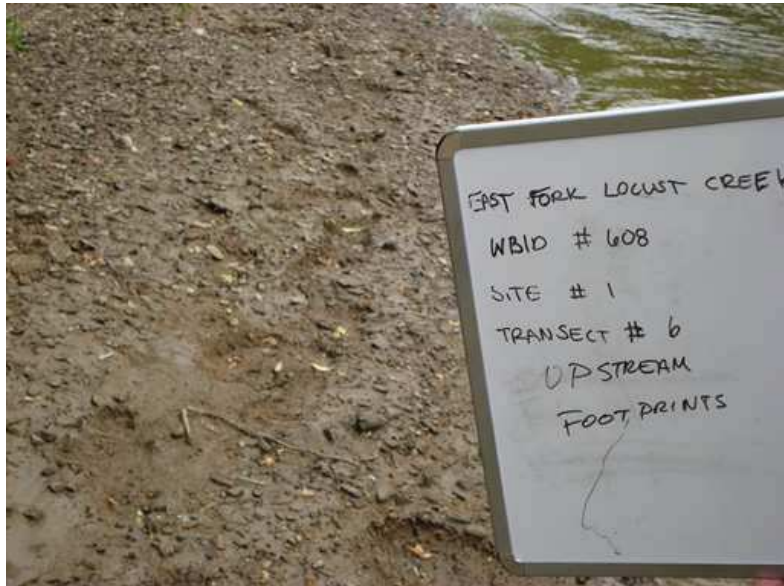


Site# 1 Photo ID# 0608-1-210, Cracked pipe



Site# 1 Photo ID# 0608-1-209, Pipe

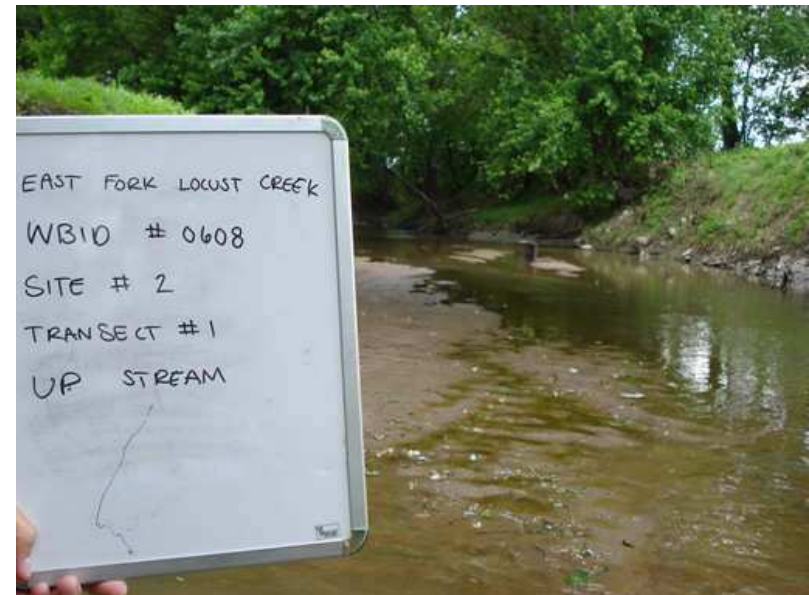
WBID# 608



Site# 1 Photo ID# 0608-1-211, Footprints

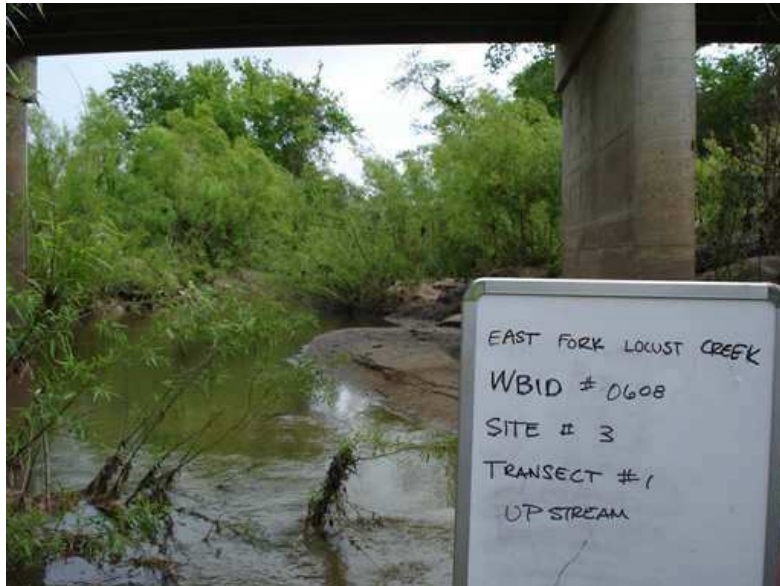


Site# 2 Photo ID# 0608-2-212, Downstream



Site# 2 Photo ID# 0608-2-213, Upstream

WBID# 608



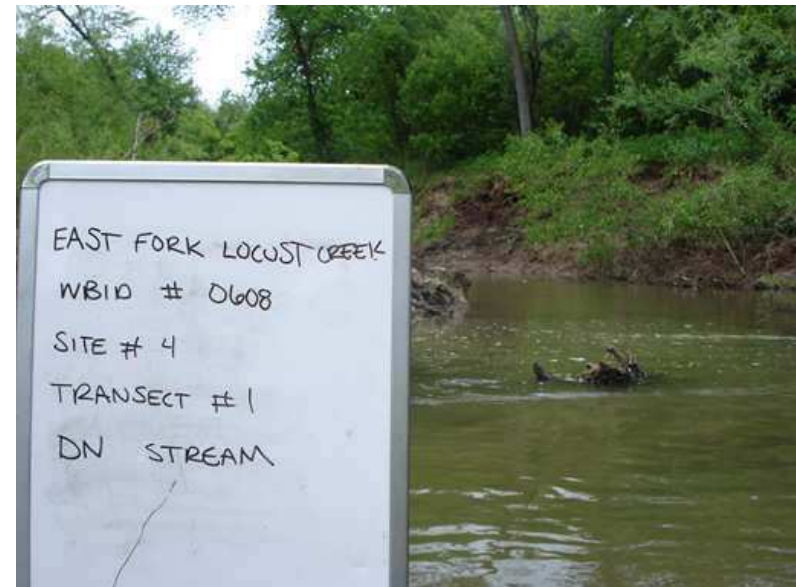
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Site# 3 Photo ID# 0608-3-215, Downstream



Site# 4 Photo ID# 0608-4-216, Upstream



Site# 4 Photo ID# 0608-4-217, Downstream

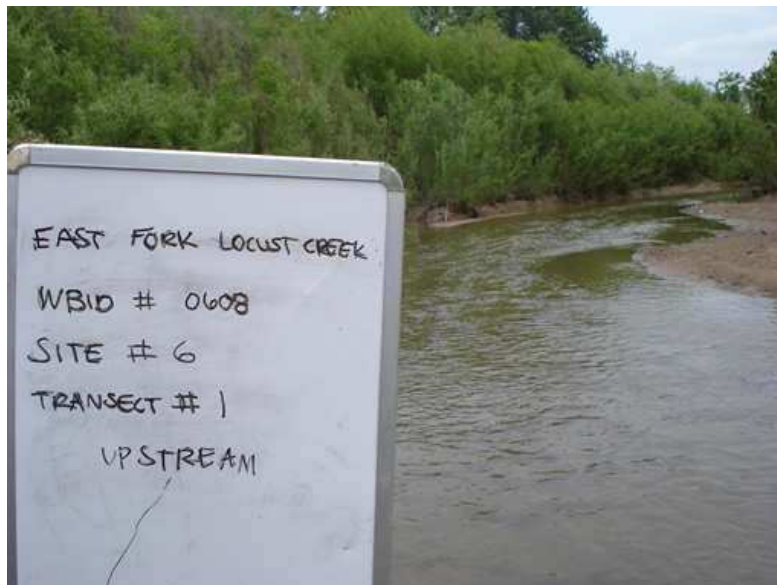
WBID# 608



Site# 5 Photo ID# 0608-5-218, Upstream



Site# 5 Photo ID# 0608-5-219, Downstream

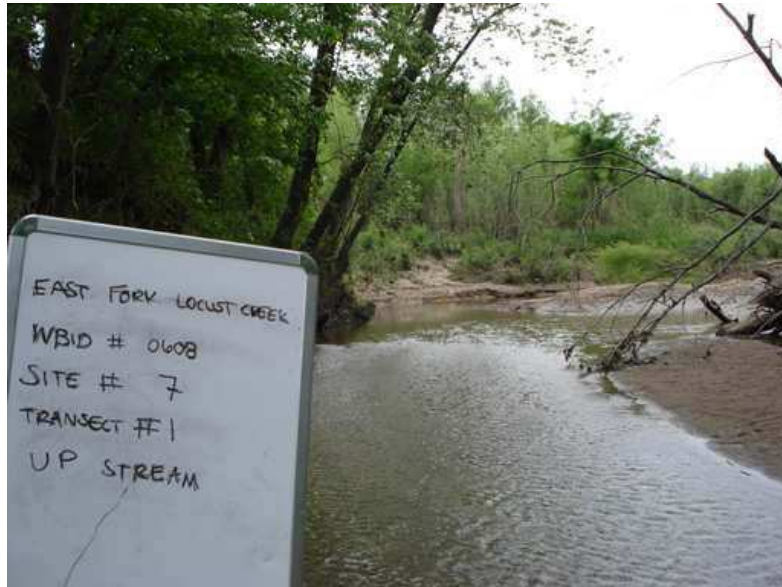


Site# 6 Photo ID# 0608-6-220, Upstream



Site# 6 Photo ID# 0608-6-221, Downstream

WBID# 608



Site# 7 Photo ID# 0608-7-222, Upstream



Site# 7 Photo ID# 0608-7-223, Downstream

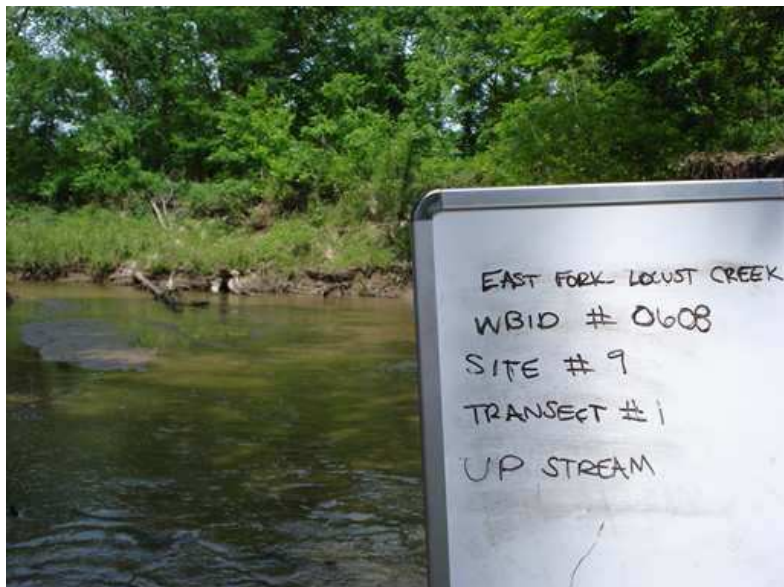


Site# 8 Photo ID# 0608-8-224, Upstream

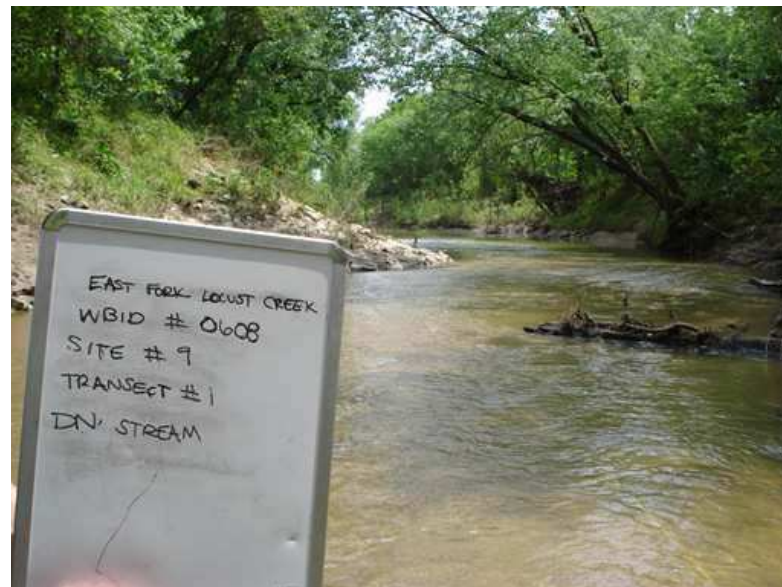


Site# 8 Photo ID# 0608-8-225, Downstream

WBID# 608



Site# 9 Photo ID# 0608-9-226, Upstream



Site# 9 Photo ID# 0608-9-228, Downstream